



PROTECTING THE KIDNEYS

when unwell and dehydrated



- When throwing up, having diarrhea, running a fever, or not eating / drinking enough for about 24 hours, there is a risk of becoming dehydrated.
- When dehydrated, some medications can harm the kidneys. These medications should be paused (for a few days) to protect the kidneys. It is important to restart the medications once feeling better.

To protect your kidneys when unwell and dehydrated, follow the steps below:

1

CHECK for dehydration. If unwell and showing signs of dehydration, continue to step 2.

| | | | | |
|-----------------------------|--|--|------------------------------------|-----------------------------------|
| Signs of Dehydration | <input type="checkbox"/> Peeing Less | <input type="checkbox"/> More Tired Than Usual | <input type="checkbox"/> Dizzy | <input type="checkbox"/> Confused |
| | <input type="checkbox"/> Dry / Cool Skin | <input type="checkbox"/> Thirsty, Dry Mouth | <input type="checkbox"/> Irritable | <input type="checkbox"/> Headache |

2

PAUSE some medications. Stop the medications listed below for 1 to 3 days until feeling better.

| Medication Family | Medication Name | Date : _____ |
|---------------------------------|----------------------------------|--------------|
| ACE inhibitor / ARB / ARNI | Healthcare provider to fill out. | |
| Diuretic | | |
| SGLT2 inhibitor | | |
| NSAID (anti-inflammatory) | | |
| Sulfonylurea and / or metformin | | |

Avoid over-the-counter products and cold medications that have ibuprofen (Advil, Motrin), naproxen (Aleve), or decongestants (pseudoephedrine, phenylephrine). Ask a pharmacist what can be taken instead.

| Reminders for people with DIABETES | | Reminders for people with HEART FAILURE | |
|---|---|--|--|
| Adjust insulin | Insulin needs may change when unwell. For example, if not eating, meal time insulin is not needed. | Ask about pausing diuretic | Please contact your healthcare team before stopping a diuretic (water pill) such as furosemide. |
| Stay hydrated | Drink lots of fluids with minimal sugar. Limit caffeine. Consider electrolyte replacement drinks (such as Hydralyte). | Stay hydrated | Keep total fluids (such as soup, water, tea) to 2 litres per day. Replace fluids lost from throwing up, diarrhea, or fever. |
| Check blood sugar | Check blood sugar more often while unwell. | Track weight and blood pressure | Contact a healthcare provider if body weight goes up or down by more than 1.5 kilograms (3 pounds) in 2 days or if blood pressure is lower than usual. |
| | Medications can lower blood sugar too much. If blood sugar is too low, contact a healthcare provider. | Be aware of salt | Canned soup and packaged foods are high in salt and can cause your body to hold on to extra fluid. |

3

RESTART medications when feeling well and eating again. Talk to a healthcare provider if not feeling better after 3 days or with any questions.

TAKE NOTE!

Medications to Pause when Dehydrated



| Medication Family | Generic Name | Brand Name | Risk if Taken when Dehydrated |
|---|----------------------------|-----------------------|--|
| ACE inhibitors (ACEi) Angiotensin receptor blockers (ARB) Angiotensin receptor blocker neprilysin inhibitor (ARNI) | benazepril | Lotensin | Increased risk of kidney damage or affecting how well the kidneys work. |
| | captopril | Capoten | |
| | cilazapril | Inhibace | |
| | enalapril | Vasotec | |
| | fosinopril | Monopril | |
| | lisinopril | Zestril | |
| | perindopril | Coversyl | |
| | quinapril | Accupril | |
| | ramipril | Altace | |
| | trandolapril | Mavik | |
| | candesartan | Atacand | |
| | irbesartan | Avapro | |
| | losartan | Cozaar | |
| | olmesartan | Olmotec | |
| | telmisartan | Micardis | |
| valsartan | Diovan | | |
| sacubitril / valsartan | Entresto | | |
| Diuretics (water pills) | chlorthalidone | Hygroton | If using a diuretic (water pill) for heart failure, check with a healthcare provider before pausing (especially furosemide). Increased risk of kidney damage or affecting how well the kidneys work. |
| | eplerenone | Inspra | |
| | finerenone | Kerendia | |
| | furosemide | Lasix | |
| | hydrochlorothiazide | HCTZ | |
| | indapamide | Lozide | |
| | metolazone | Zaroxolyn | |
| | spironolactone | Aldactone | |
| SGLT2 inhibitors | canagliflozin | Invokana | Increased risk of kidney damage or affecting how well the kidneys work. |
| | dapagliflozin | Forxiga | |
| | empagliflozin | Jardiance | |
| Non-steroidal anti-inflammatory drugs (NSAID) | acetylsalicylic acid (ASA) | Aspirin / Entrophen | Increased risk of kidney damage or affecting how well the kidneys work. It is okay to <u>continue low dose 81mg ASA</u> . Be aware: over-the-counter cough, cold and flu products often contain these medications. |
| | celecoxib | Celebrex | |
| | diclofenac | Voltaren | |
| | ibuprofen | Advil / Motrin | |
| | indomethacin | Indocid | |
| | ketorolac | Toradol | |
| | naproxen | Aleve / Naprosyn | |
| Sulfonylureas & secretagogues | gliclazide | Diamicon MR | Increased risk of low blood sugar. |
| | glimepiride | Amaryl | |
| | glyburide | Diabeta | |
| | repaglinide | Gluconorm | |
| Metformin | metformin | Glucophage / Glumetza | Increased risk of side effects. Consider restarting at a lower dose for a few days if having nausea and / or diarrhea. |

For references visit www.rxfiles.ca/kidney

This document reflects input from two focus groups of community panel members, facilitated by the Canadian Hub for Applied and Social Research (CHASR) at the University of Saskatchewan. Each group included 18 participants.

Disclosures: No conflicts of interest are reported.

Disclaimer: RxFiles Academic Detailing is part of the College of Pharmacy and Nutrition at the University of Saskatchewan. The content of this work represents the research, experience and opinions of the authors and not those of the University of Saskatchewan. Neither the authors nor the University of Saskatchewan nor any other party who has been involved in the preparation or publication of this work warrants or represents that the information contained herein is accurate or complete, and they are not responsible for any errors or omissions or for the result obtained from the use of such information. Any use of the materials will imply acknowledgment of this disclaimer and release any responsibility of the University of Saskatchewan, its employees, servants or agents. Readers are encouraged to confirm the information contained herein with other sources.

References for Sick Day Management Tool:

1. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. **KDIGO 2024** Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. *Kidney Int.* 2024 Apr;105(4S):S117-S314.
2. McDonald M, Virani S, Chan M, et al. **CCS/CHFS** Heart Failure Guidelines Update: Defining a New Pharmacologic Standard of Care for Heart Failure With Reduced Ejection Fraction. *Can J Cardiol.* **2021** Apr;37(4):531-546.
3. **Diabetes Canada** Clinical Practice Guidelines Expert Working Group. The User's Guide to the Pharmacologic Glycemic Management of Type 2 Diabetes in Adults---**2024 Update**. *Can J Diabetes.* 2024 Oct;48(7):425-430.
4. Faber SJ, Scherpbier ND, Peters HJG, Uijen AA. Preventing acute kidney injury in high-risk patients by temporarily discontinuing medication - an observational study in general practice. *BMC Nephrol.* 2019 Dec 4;20(1):449.
5. Watson KE, Dhaliwal K, McMurtry E, et al. Sick Day Medication Guidance for People With Diabetes, Kidney Disease, or Cardiovascular Disease: A Systematic Scoping Review. *Kidney Med.* 2022 May 28;4(9):100491.
6. Watson KE, Dhaliwal K, Robertshaw S, et al; PAUSE (Preventing Medication Complications During Acute Illness Through Symptom Evaluation and Sick Day Guidance) Medication Safety Advisory Panel. Consensus Recommendations for Sick Day Medication Guidance for People With Diabetes, Kidney, or Cardiovascular Disease: A Modified Delphi Process. *Am J Kidney Dis.* 2023 May;81(5):564-574.
7. Fink JC, Maguire RM, Blakeman T, et al. Medication Holds in CKD During Acute Volume-Depleting Illnesses: A Randomized Controlled Trial of a "Sick-Day" Protocol. *Kidney Med.* 2022 Jul 31;4(9):100527.
8. Kado K, Okada H, Suzuki S, et al. Study of assessment of knowledge and understanding for coping with sick days among patients with diabetes in community pharmacy: a cluster randomized controlled trial (SAKURA trial). *J Pharm Policy Pract.* 2023 Sep 25;16(1):104.
9. Bayoumi I, Dolovich L, Hutchison B, Holbrook A. Medication-related emergency department visits and hospitalizations among older adults. *Can Fam Physician.* 2014 Apr;60(4):e217-22.
10. Martindale AM, Elvey R, Howard SJ, et al. Understanding the implementation of 'sick day guidance' to prevent acute kidney injury across a primary care setting in England: a qualitative evaluation. *BMJ Open.* 2017 Nov 8;7(11):e017241.